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ABSTRACT

Total Quality Management (TQM) is a way of doing business that involves every employee, both labor and management, in an effort to improve quality and productivity. The quality management concept consists of common principles: (1) customer focus; (2) process focus; (3) failure prevention; (4) mobilization of work force; (5) decision making based on fact; and (6) feedback. Industries across the United States are effectively using TQM to improve quality and productivity in the workplace; the theories of TQM can be applied to schools. To apply TQM to education, the process of change must involve the total community. There are 10 characteristics of a well-developed school system that is based on the corporate structure. Some of these are cultural values which support full competency development and lifelong learning, and tight linkages between training departments and the users of their services. Strategic planning to implement complex organizational change consists of four fundamental concepts: missions, strategies, tactics, and assessment. A strategic plan should include the following sections: missions statement, goals, benchmarks, time lines and budget. (KDP)

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TOTAL QUALITY MANAGEMENT (TQM) AS THE PROCEDURE FOR MANAGEMENT OF INTEGRATED ACADEMICS

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INTRODUCTION

The process of restructuring the educational system in the United States continues to gain momentum. Just a few years ago if one opened a discussion on Principles of Technology, Tech Prep, or Integrated Academics, only a few of the more curious would even lean over to hear what it meant. This is no longer true. Funding for Tech Prep through the Perkins Act has brought about many changes in the education community.

Key to the development of programs which require educators to focus on using an applied and meaningful methodology is the study of technology. The supposition that all of technology is the domain of the technology educators would be highly indefensible in the current society. However, Technology Educators can effectively argue that much of the methodology and systems organizers common to our area of study are well designed and do promote applied study of key principles common to academic subjects. The student is at the center of the program learning to work in realistic environments filled with modern equipment and challenged to solve problems common to society.

The purpose of this presentation however is not to attempt to define programs but to provide a process which can be used to successfully manage and implement concepts of Integrated Academics. Key to this process is the use of the concepts of Total Quality Management using strategic planning as is commonly found in many industries. It is management but the philosophical differences are great. Total Quality Management (TQM) involves the effective participation of all in bringing about change in the school. We are at the center of this process of change.

The Quality Revolution.

W. Edwards Deming is frequently identified as one of the key leaders in bringing the concept of quality to the major corporations in America. He developed many principles of statistical quality control but promoted a total orientation of management which involved workers and management as a team having as their purpose of meeting the customer in the marketplace.

According to Gabor (1990) ". . . companies that have embraced Deming's vision see management's job as being able to **work on the system** to achieve continual product and process improvement. The Deming-style manager must ensure a system's consistency and reliability." (p. 8) In order to accomplish this task, management must enlist the help of every employee. They must work as a team to identify all possible options which can be used to improve the system. It is a form of management which goes behind the numbers searching out solutions to problems.

Total Quality Management has become the watchword of every major company seeking to become competitive in the marketplace. TQM is:

A cooperative form of doing business that relies on the talents and capabilities of both labor and management to continually improve quality and productivity using teams. (Jablonski, p. 4)

The uniqueness of this seemingly simplistic model is that it brings together the resources of both management and worker focusing on the same goal. It takes total dedication of both to effectively define and seek solutions. It eliminates the competitive-finger pointing which is destructive in the process of defining and reorganizing effective organizations.

The six principles commonly identified with Deming's model are:

1. Customer focus, (Quality defined by Customer)
2. Focusing on process as well as results, (Reduce Variation)
3. Prevention of failure rather than inspection, (Long term management commitment to improvement)
4. Mobilization expertise of workforce (All members of the organization must be involved)
5. Fact-based decision making (Education and training of all employees essential to analysis needed for improvement)
6. Feedback (Performance ratings used to measure the contributions of individual employees are usually destructive) (Jablonski, p. 26; Gabor, p. 18)

TQM is not a **product**, it is a **process**. Implementation requires total dedication from all members of the organization that a change is needed. It requires a total philosophical change focusing all of the abilities of the participants to accomplish the highest level of achievement possible (Berry, 1-14). It is a logical realization that the concept of Human Resource Development is at the center of this current thrust.

Deming's Fourteen Points of Management. In addition to the six principles which served to define the Deming Philosophy, the "Fourteen Points" which serve as the guidelines are:

1. Establish constancy of purpose
2. Improve constantly every system of production and service
3. Eliminate numerical goals and quotas, including management by objectives
4. Drive out fear so that everyone may work effectively for the company
5. Institute leadership
6. End the practice of awarding business largely on the basis of price
7. Break down the barriers between departments
8. Institute training on the job
9. Eliminate the annual rating or merit system
10. Institute a vigorous program of education and self-improvement
11. Eliminate the slogans and exhortations

12. Cease dependence on mass inspections
13. Adopt the new philosophy
14. Create the structure in top management to accomplish the transformation (Gabor, p. 19-30)

Application to the Education Environment. The introduction is only industrial jargon. At least that's a real switch away from the normal criticism; only educational jargon. We could say, "Are there any workable models?". The response is yes---many. A visit to Saturn Corporation in Pine Hills, TN is well worth the effort to view a company dedicated to the principles of TQM and to the effective use of Human Resource Development. Education can also borrow effectively from this model but must be willing to view the total education community in this process of assessment.

The saying goes, "You can't make a rose out of a Sow's ear." Likewise, if you only view the student as the brunt of evaluation, the process focuses only on product and fails to review the system used to produce the product. Chrysler Corporation couldn't build engine blocks when the cylinder bore machine would not hold tolerance. Likewise, a school corporation which doesn't view all parts as critical will end up failing to understand the interrelationships of a systematic approach to assessment which is essential to outcome.

Designing an Educational TQM System. If the educational community is committed to the introduction of TQM it must extrapolate key concepts from existing industrial models. In this process a clear definition of what can be applied to the school is essential. After defining TQM as an applicable model for change, it can be used to implement concepts such as Integrated academics. Remember integrated academics is only one of several concepts currently being implemented that focus on organization, methodology, working relations between teacher to teacher, teacher to administrator, teachers and administrators to students, and schools to community. The process of change must involve the total community.

Total Quality Management in the school must have as its goal that of providing education to society that relies on the talents and capabilities of those individuals involved. The primary purpose is to improve the quality and efficiency of the system working with students for the betterment of society. Key to implementation is:

* Participative management
* Procedures to promote a continuous process of improvement
* The use of teams to effectively use the synergism of the group, and
* A clearly defined process of gathering information to assure quality.

The goal is to influence a change within the total school. Primary to this change is the development of a strategic plan which can be used in the systematic process of

organizational change. This process should be based on a rational-data based information which is essential to the decision process.

Svenson, R. A. & Rindere, M. J. (1992) listed the critical earmarks of a world-class learning system in a corporate structure. These are:

1. Cultural values which support full competency development and lifelong learning.

2. The organization exhibits strong executive leadership and participation in the quest for excellence.

3. The system is characterized by total participation across all levels of the organization.

4. The corporate learning system is driven by business performance goals and is competency based.

5. There are tight linkages between training departments and the users of their services.

6. Resources are matched to meet the need and the objectives of the training function.

7. Training staffs are competent and include a broad range of expertise which is balanced to focus on the organization.

8. Different and unique strategies are employed in providing the necessary service.

9. There is a strong administrative coordination of education and training.

10. Internal education and training resources are leveraged (improved quality and decreased cost) through appropriate use of outside resources. (pp 16-20)

Strategic Planning As a Process of Implementing Complex Organizational Change.

Education must involve the process of linking the organization of education to the needs of the community. This is not different from the process of strategic planning and training in the business world according to Rado (1990) who says, "Linking training to business strategies and producing favorable bottom-line results is the desire of most companies, and accountability is usually charged to the human resource development function." (p. 12).

The four fundamental concepts which are the focus of this process are:

1. **Mission.** Primary purpose for existence, clarity of purpose, direction goals.
2. **Strategies.** Underlying visions of how to achieve the mission.
3. **Tactic.** Operational plans and activities to fulfill strategic visions.
4. **Assessment.** Evaluation for adjustment and continuous improvement. (Rado, pp 12-16)

Strategic planning cannot be done independently from the participants in the total system. This means strong support from the administration but it goes further. The team which is developed to form the strategic plan must include individuals from each section, school organization, parental community, and the business/industrial community. It is a consensus process which takes commitment and resources to make operational.

A strategic plan should include the following sections:

Mission Statement which establishes direction of the process into which the organization is embarking. This needs the support and involvement of the administration of the school corporation.

Goals which have been determined through a process of needs assessment both within the school corporation and the surrounding community. These should reflect both the current strengths but also address weaknesses and anticipated accomplishments in the future.

Benchmarks which have been validated by being compared with other school corporations. Benchmarking is a process which illuminates the degree to which other organizations satisfy their internal and external customers. (Vaziri, p. 81)

Time lines using systems procedures such as GANTT charts and PERT charts which introduce and systematize the procedures of planning and implementation.

Budget which is realistically premised on estimates of cost to implement the concepts. Budget estimates should focus on a three year process involving implementation, modification and ideation.

Strategic planning can be effectively used to involve all of the people/employees in defining and establishing direction for the organization. It should never be viewed as a completed product but as a three year process of current operation, projected operation and future planning. This process requires the application of system logic. Those components of input-process-output and feedback must be in constant review, modification and implementation. Quality Management is not accomplished as a single episode but becomes a way-of-life for complex organizations which seek world-class levels of competition.

Benchmarking. The simplest definition of benchmarking is not different from being a coach seeking ways to win athletic events in any high school. It is the fervent seeking of information about the competition in hoping to copy and perfect with the goal of beating the competition. It means taking careful stock of what is happening around you and being able to use that information to improve your organization.

Xerox Corporation is frequently mentioned in the literature for excellence in benchmaking (Altany, 52-59). "Benchmarkings benefits as a strategic planning method, then, are that it identifies the keys to success for each area studied, provides specific quantitative targets to shoot for, creates an awareness of the state-of-the-art approaches and helps companies cultivate a culture where change, adaptations and continuous improvement are actively sought out." (p. 56) These same benefits can be seen in the use of strategic planning and benchmarking in the Technology Education Divisions planning process.

In addition to the process of benchmarking, many industries are attempting to meet the standards identified as ISO 9000/Q90. (Arter, 1992) These standards have become the cornerstone of companies which intend to compete on the international market. The standards are far ranging from management, quality systems, training, inspections, corrective actions and others, all of which are designed to assure the development of an efficient and competitive organization.

Quality Design Teams. One of the key components in organizational change is the effectiveness of building teams. In visiting Saturn Corporation teams are a critical component in assuring quality in the process of producing a car. Philosophically, the premise of the organization is that people make the company and are critical to design, innovation, quality and production. In integrated academics, building a team is essential to any success. It cannot be an integrated venture if it is not inclusive and representative of the potential of the school. In our technological society we must become interdependent; borrowing resources at every opportunity and using each other to promote a more complex and complete conceptualization of programs.

The principle of team work is most evident in the problem-solving activities of the Technology Student Association. The more than 25 competitive events require the maximum capabilities from individuals, groups and teams in this competitive forum. Similarly the National Engineering Design Challenge, The Junior Engineering Technical Society (JETS) and the National Talent Network (NTN) depend on the principles of building effective teams and learning through a problems-solving process.

Integrated academics is dependent upon the team concept. South Vigo High School in Terre Haute, Indiana has effectively used teams to change the curriculum of the school and influence the organization. The benefactors of this process are the student and eventually the community.

Organizational Effectiveness of TQM. Just how hot is the topic of TQM? According to Ron Zemke (1993) in the next 24 hours, 125 books will be published in the United States; 3 will be about TQM. He states, "The chances that you will be able to keep up with this information explosion in the area of TQM alone are about zero. (p. 48) With his somewhat tongue in cheek rendition, the people you must know by name are W. Edward Deming, Joseph M. Muran, Armnanda V. Feigenbauma and Kaaoru Ishikawa. All have brought the concept to the forefront.

Berry (1991) in Managing the Total Quality Transformation identified the following improvements in the organization through TQM.

1. Improved teamwork and inter-unit cooperation.

2. Improved communication through a common language and a strong customer (student/community) focus.

3. Increased employee involvement.

4. Greater opportunity for employees to contribute meaningfully to the organization.

5. Improved employee-management relations.

6. Improved focus on key goals of the organization.

Summary. The current process of changing the educational system can be helped by the use of strategic planning and the principles of total quality management. These same principles are currently being developed and refined in the industries across the United States. The results of this process will be the accomplishment of many of the goals of redefining the education system in the United States.

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